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Micrognathus spinirostris, a new Indo-Pacific pipefish (Syngnathidae)

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Abstract

Micrognathus spinirostris n. sp., characterized by the presence of lateral snout spines, spines on postorbital and posterior supraorbital, branching dermal flaps, notched superior ridge margins and 14 trunk rings, is illustrated and described from Western Australia, Sri Lanka and the Samoa Is. Features of ontogenetic development are described and the species is compared to its most closely related Indo-Pacific congeners (*M. nitidus, M. dunckeri, M. mataafae, M. brocki*).

Introduction

Herald (1953) and Herald and Randall (1972) proposed three subgenera (*Anarchopterus* Hubbs, *Micrognthus* Duncker, *Minyichthys* Herald and Randall) for the accommodation of nominal species of the syngnathine (tail-pouch) genus *Micrognathus* Duncker 1912. However, *Micrognathus* has never been diagnosed or differentiated adequately from other genera with the same configuration of principal body ridges (e.g. *Halicampus* Kaup, etc.) and subgeneric treatment is premature. Absence of an anal fin is here considered sufficient basis for restoring generic rank to *Anorchopterus* which now includes two western Atlantic species, *A. criniger* (Bean and Dresel) and *A. tectus* (Dawson). Relationships of other nominal species of *Micrognathus* remain uncertain, pending completion of a review of these forms presently in preparation. Among recently examined Indo-Pacific pipefishes, there are several undescribed species referrable to *Micrognathus* sensu Herald (1953). Most of these are represented by juveniles, damaged or poorly preserved specimens, but adequate material has been accumulated to permit description of one of the more distinctive forms.

Examined material is deposited in collections of the Academy of Natural Sciences of Philadelphia (ANSP), Bernice P. Bishop Museum (BPBM), Gulf Coast Research Laboratory Museum (GCRL), United States National Museum of Natural History, Smithsonian Institution (USNM) and the Western Australian Museum (WAM). Measurements are in millimetres (mm), proportional values are referred to standard length (SL) or head length (HL), depths are in metres (m); for other methods see Dawson (1977).

Micrognathus spinirostris n. sp.

Figs. 1-3

Material examined: Five specimens, 23.8-103.0 mm SL, including holotype and one paratype.

Holotype: WAM P.26479-001 (103.0 mm SL, male), Western Australia, North West Cape, off Tantabiddi Creek (21°55'S, 113°15'E), outer reef, 10 m, 19 May 1976, G. R. Allen coll.

Paratype: GCRL 16801 (69.0 mm SL, immature or female), locality as for holotype, 8-10 m, 27 June 1975, G. R. Allen coll.

Other material: Sri Lanka (Ceylon): ANSP 142643 (1, 62.5); USNM 220882 (1, 23.8). Samoa Is., Tutuila I.: BPBM 18718 (1, +69.0, damage).

Diagnosis: Trunk rings 14; ridges distinctly notched or indented between rings; head and body with branching dermal flaps; subadults and adults with 2-3 spine-like projections on median dorsal snout ridge, 3 lateral spines on snout, spines on postorbital and posterior supraorbital, and a distal subterminal notch in superior ridges of rings; without alternating narrow bands of pale and dark brown.

Description: Rings 14 + 33-35; subdorsal rings 1.25-0.75 + 3.25-3.75 = 4.25-4.75; dorsal-fin rays 19-20; pectoral-fin rays 13 (in 3 counts)-14 (in 6); anal-fin rays 3; caudal-fin rays 10. Measurements (mm) of holotype and paratype (in parentheses) follow: SL 103.0 (69.0), HL 9.1 (6.7), snout length 2.9 (1.9), snout depth 1.3 (1.0), length of dorsal-fin base 8.2 (5.7), anal ring depth 4.3 (2.4), trunk depth 4.1 (2.3), pectoral-fin length 2.2 (1.4), length of pectoral-fin base 1.7 (1.1).

Superior trunk ridge arched slightly dorsad in subdorsal region (Fig. 1), discontinuous with superior tail ridge near rear of dorsal fin; lateral tail ridge ends without deflection on anal ring; lateral trunk ridge confluent with inferior tail ridge near anal ring; inferior trunk ridge ends at anal ring; venter of trunk slightly V-shaped, without longitudinal keel; dorsal-fin base not distinctly elevated.

Head length about 10 in SL; snout short (3.1-3.5 in HL), its depth 1.9-2.2 in snout length; median dorsal snout ridge (Figs. 1-2) with 2-3 flat spine-like projections, the posteriormost terminates distally in

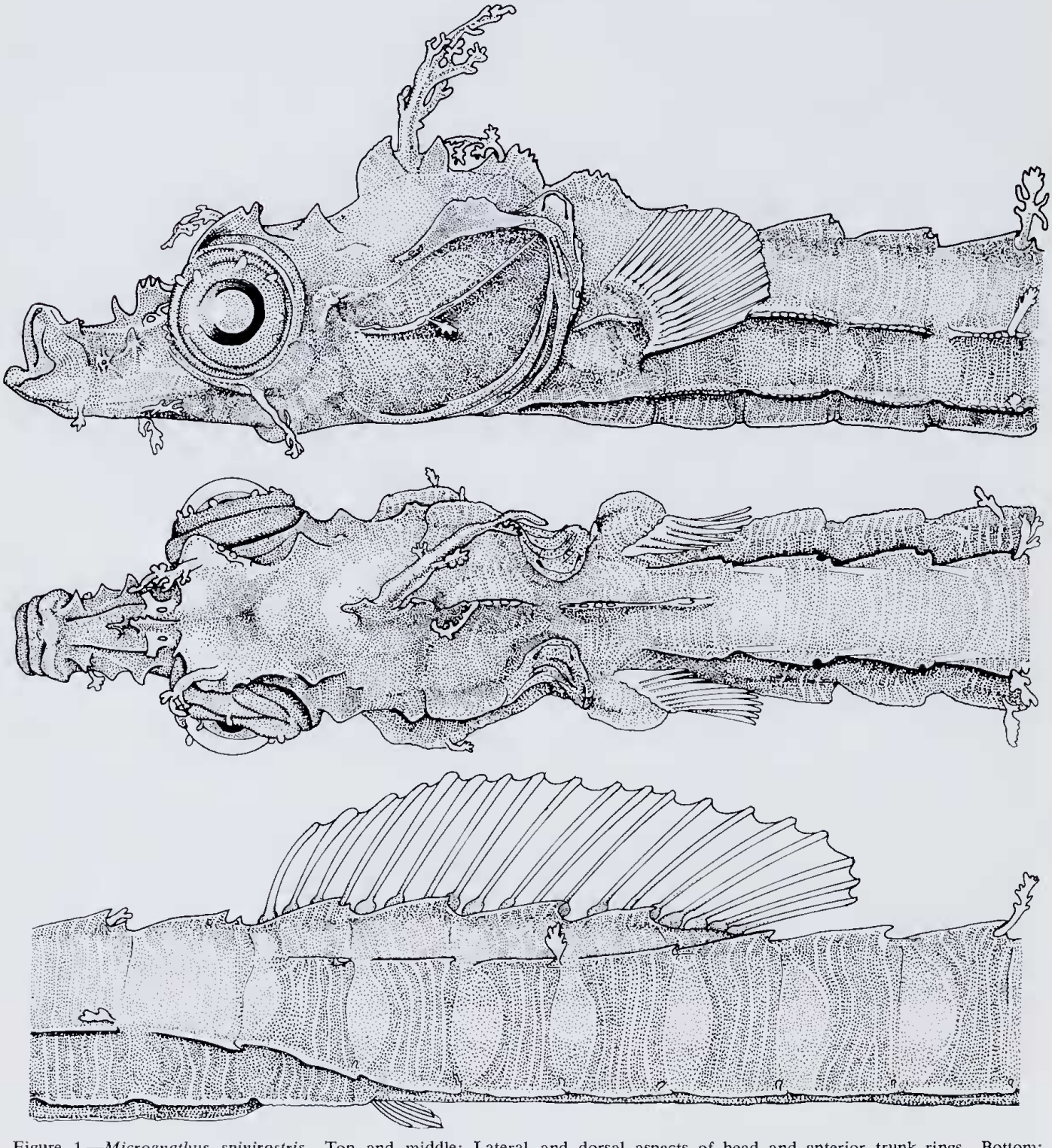

Figure 1.—*Micrognathus spinirostris*. Top and middle: Lateral and dorsal aspects of head and anterior trunk rings. Bottom: Section of body illustrating ridges, dorsal and anal fins. From GCRL 16801 (69 mm SL, paratype).

2-3 points, whereas the remainder have entire margins; side of snout with three distinct, flat to conical, spines; one dorsolateral on anterior third of snout, one midlateral near middle of snout and another just above midlateral axis near vertical from penultimate projection on median dorsal ridge. Rim of orbit with 1-2 minute spines directed anterolaterad near level of nares, one slightly above level of dorsal margin of snout and another on posteroventral portion of rim; inferior portion of orbit flared outward from side of head, its edge irregularly emarginate, and terminates posteriad in a flat spine-like projection; supraorbital ridges broad, flared dorsolaterad from the depressed interorbital, the margins entire in front but with 3-4 spine-like points posteriad; posterior supraorbital area with 1-2 separated, flat to conical, spines; postorbital with a conical spine near upper anterior angle of opercle; median dorsal head ridges elevated strongly, distal margin of the frontal ridge with a deep notch, the other ridges

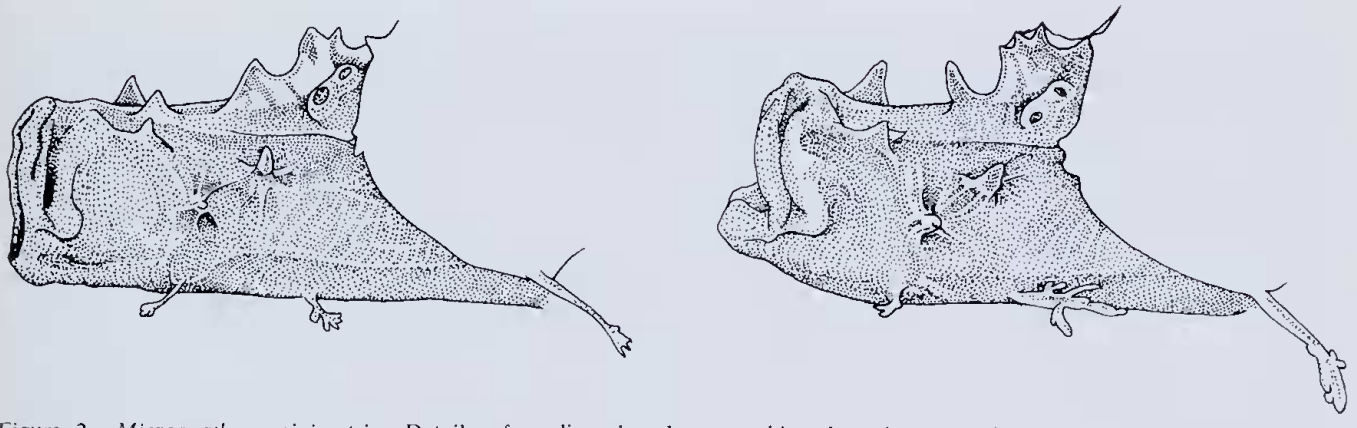

Figure 2.—*Micrognathus spinirostris*. Details of median dorsal snout ridge, lateral snout spines and dermal flaps in holotype (left) and paratype (right).

denticulate. Opercular ridge complete, angled dorsad towards upper posterior angle; opercle elsewhere ornamented with minute striae.

Pectoral-fin base protrudes laterad, the upper ridge reduced to a small conical anterior spine, the lower ridge prominent throughout. Body ridges distinct, notched or indented between rings; superior ridges elevated above dorsum, angled dorsoposteriad on each ring, the edges smooth to denticulate in front but usually with a distinct distal notch and terminal spine; margins of other ridges mostly denticulate but without subterminal notch; scutella without longitudinal keel, prominent in holotype but rather indistinct in paratype. Holotype with pouch plates angled somewhat laterad, brood pouch developed below 13 tail rings, membranes little enlarged and type of pouch closure unknown.

Head with short simple dermal flaps on eye, with elongate branching flaps on side of snout, suborbital, and median dorsal head ridges; with a small branching flap on the inferior ridge of the pectoral-fin base. Holotype with short branching flaps originating on notches in superior ridges of 4th and 8th trunk rings and with similar flaps on posterior part of lateral ridges of 4th trunk ring. Principal axis of branching flaps round or oval in cross section, the distal extremities of branches not expanded or pad-like.

Ground colour of holotype (Fig. 3) now light tan in alcohol; head blotched or irregularly mottled with brown; dorsum and sides of trunk with indications of about 4 broad (3-4 ring) mottled brownish bars and narrow (one ring) pale interspaces; similar bars persists on anterior portion of tail but the distal third is pale throughout; venter of head and several anterior trunk rings mottled with brown, venter elsewhere pale. Dorsal and pectoral rays edged narrowly with brown, the membranes hyaline; caudal fin pale. The elongate dermal flaps sometimes with brown shading near base, otherwise pale. A colour photograph of the fresh specimen shows similar markings and general colouration and and there are 10 narrow pale bars (interspaces) on the side of body behind the pectoral-fin base.

Etymology: Named *spinirostris,* an adjective, in reference to the spiny armature of the snout.

Comparisons: Among nominal Indo-Pacific congeners, *M. spinirostris* shares the modal count of 14 trunk rings, upturned opercular ridge and presence of one or more lateral spines or projections on snout with *M. nitidus* (Günther), *M. brocki* Herald and *M. dunckeri* (Chabanaud). The combination of a discontinuous median dorsal snout ridge, notched superior body ridges and counts of 13-14 pectoral-fin rays separates *M. spinirostris* from *M. dunckeri,* wherein the snout ridge is elevated and continuous, superior ridges are not notched and pectoral-fin rays are modally 11. Both *M. brocki* and *M. nitidus* agree with *M. spinirostris* in that superior ridges are notched on at least some rings. However, the presence of three lateral snout spines, 1-2 spines on the posterior supraorbital and one on the postorbital distinguishes subadult and adult *M. spinirostris* from similar specimens of these species, wherein there are but 1-2 lateral snout spines and spines are absent from the postorbital and posterior supraorbital. Furthermore, *M. brocki* has 21-23 dorsal- and modally 12 pectoral-fin rays (respectively, 19-20 and usually 14 in *spinirostris*) and *M. nitidus* has 29-32 tail rings (33-35 in *spinirostris).* The present species is perhaps most similar to *M. nitidus* in general morphology, but the latter further differs in presence of simple rather than branching dermal flaps and has characteristic alternating narrow bands of pale and dark brown (absent in *spinirostris*).

The Indo-Pacific *M. mataafae* (Jordan and Seale) is also superficially similar to *M. spinirostris.* It differs, however, in having a modal count of 15 trunk rings and only 1-2 lateral snout spines. It lacks the posterior supraopercular spines and superior ridges are not notched.

Remarks: Fritzsche (1975) noted ontogenetic development of spines on the snout of the doryrhamphine (trunk-pouch) pipefish *Doryrhamphus melanopleura* and suggested that similar development occurs in the median dorsal snout ridge of *Micrognathus brachyrhinus* Herald. Among present material, two specimens show differences which suggest that development of the snout ridge, head spines and notches in superior ridges is also ontogenetic in *M. spinirostris.* A 23.8 m SL specimen (USNM 220882) agrees with the type material in having elongate branching flaps on the head, short flaps on the eye and flaps at the posterodorsal angles of some trunk rings. However, the median dorsal snout ridge is represented by two elevated protrusions which are united basally by an emarginate septum and their margins are entire. Furthermore, there appears to be only two developed lateral snout spines, the postorbi-

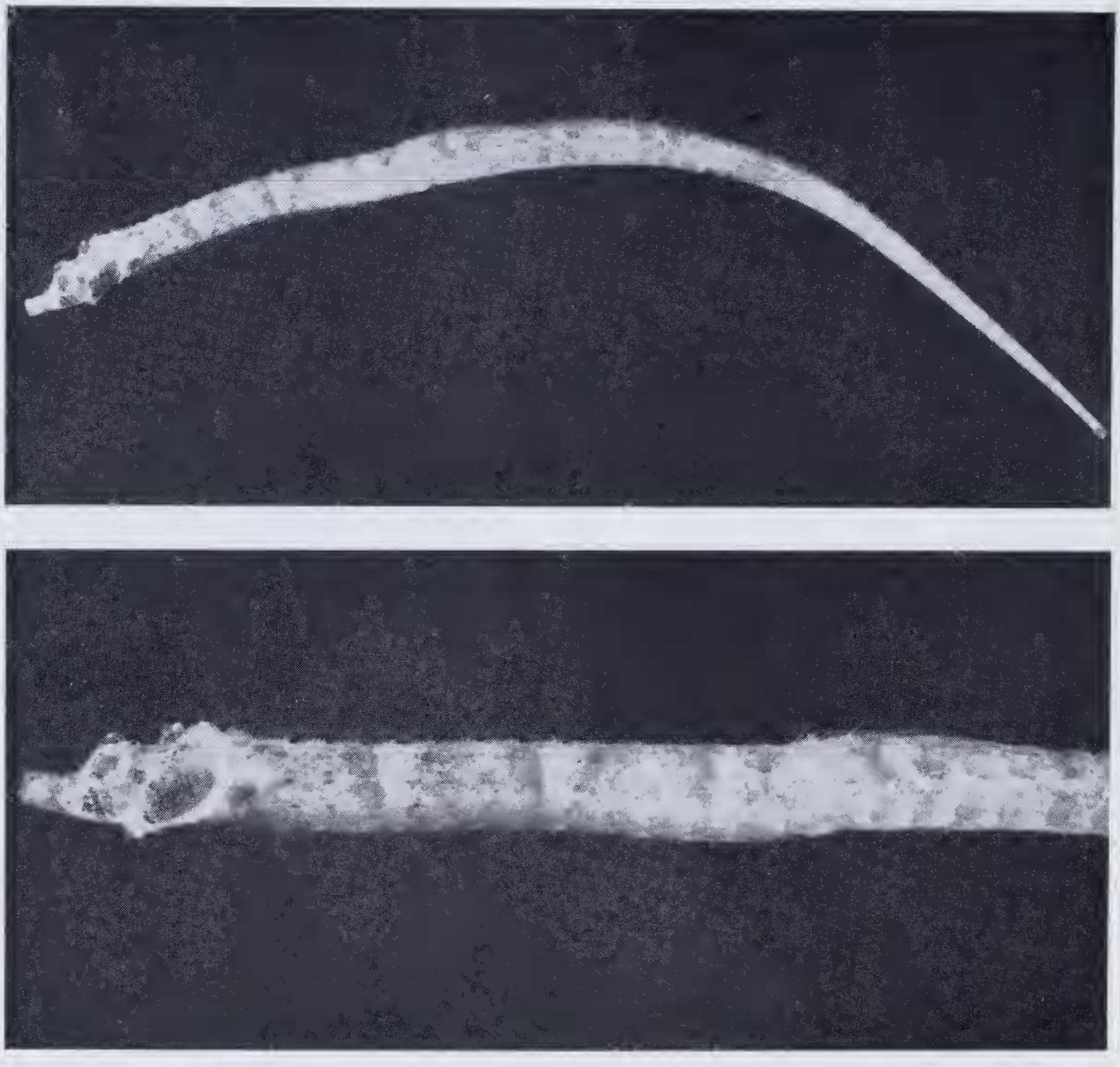

Figure 3.—*Micrognathus spinirostris*. WAM P.26479-001 (103 mm SL, holotype).

tal spine is vestigal and the posterior supraorbital is crossed by a flared ridge. Although superior ridges are angled strongly posterodorsad on each ring, the margins are entire and lack the subterminal notch. A 62.5 mm SL fish (ANSP 142643) has a tripartite median snout ridge but the posterior element is not notched distally and three lateral snout spines are present. Unlike the holotype and paratype, this specimen has but one posterior supraorbital spine and subterminal notches are developed only on the superior trunk ridges. A decaudate male (BPBM 18718) agrees with the holotype in all essential features.

Known specimens of *M. spinirostris* were taken with ichthyocide in SCUBA assisted collections within a range of 4.6-10 m over rock or coral bottom.

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